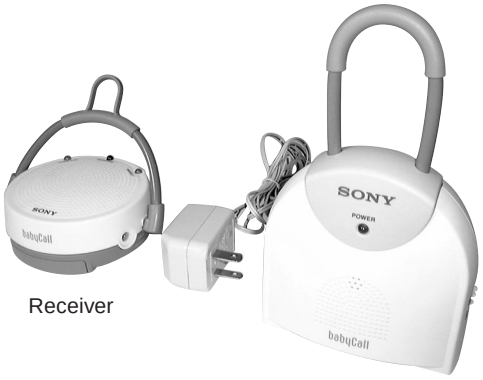
NTM-30

SERVICE MANUAL

US Model
E Model

Ver 1.0 1999. 03



Receiver

Transmitter

SPECIFICATIONS

Operating frequency	A ch: 49.830 MHz B ch: 49.860 MHz C ch: 49.890 MHz
Modulation system	FM

Transmitter

Circuitry	Crystal controlled circuit
Power requirement	120 V AC, 60 Hz
Power consumption	2 W
Dimensions	106 x 107 x 48 mm ($4^{1}/_{4}$ x $4^{1}/_{4}$ x $1\ ^{15}/_{16}$ inches) (incl. projecting parts, not incl. antenna)
Mass	Approx. 255 g (9 oz)

Receiver

Circuitry	Single superheterodyne
Power requirement	9 V DC (6F22 battery, not supplied, alkaline recommended) AC power adaptor (DC IN 9V jack): 120 V AC, 60 Hz
Intermediate frequency	455 kHz
Audio power output	250 mW
Speaker	57 mm dia., 8 ohms
Dimensions	96 x 96 x 41.5 mm ($3\ ^{7}/_{8}$ x $3\ ^{7}/_{8}$ x $1\ ^{11}/_{16}$ inches) (incl. projecting parts, not incl. antenna)
Mass	Approx. 160 g (5.7 oz) (incl. battery)
Accessory supplied	AC power adaptor (1)

Design and specifications are subject to change without notice.

SOUND-SENSOR NURSERY MONITOR

MICROFILM

SONY®

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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage.
Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

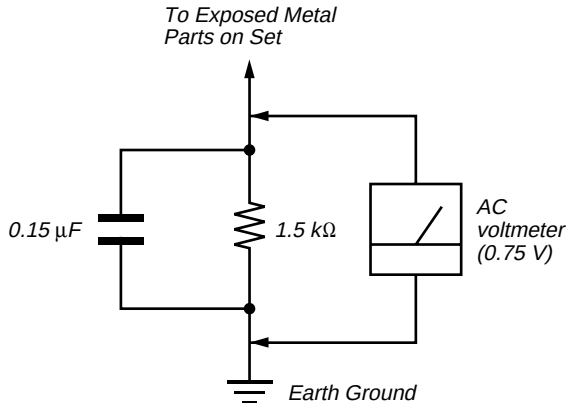


Fig. A. Using an AC voltmeter to check AC leakage.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

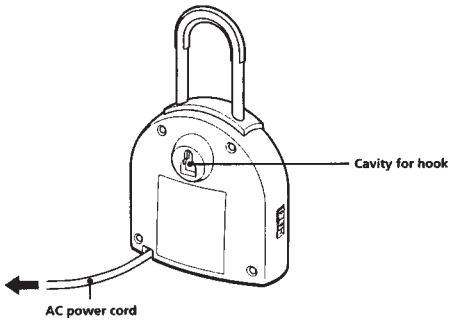
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

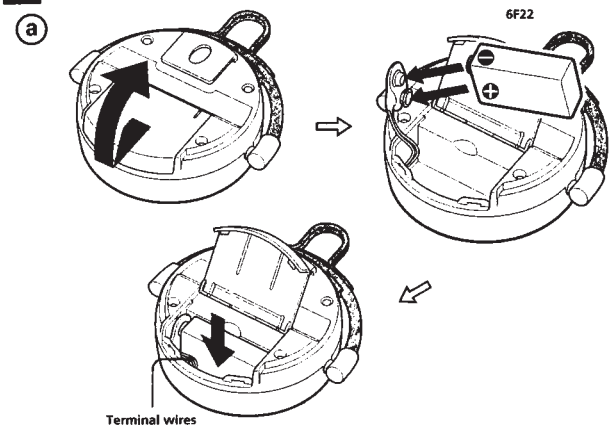
SECTION 1
GENERAL

This section is extracted from instruction manual.

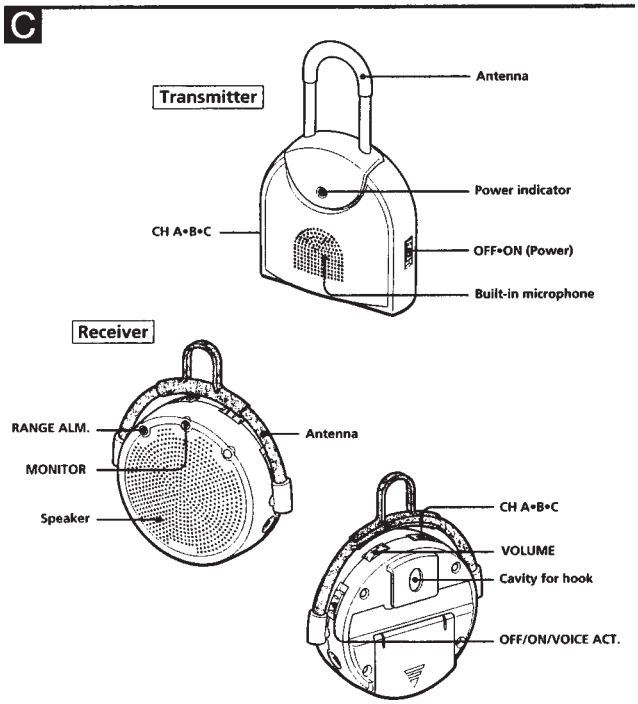
A



B



C



Features

- 3 channels for maximized reception
- Voice Activation eliminates most background noise for a more peaceful sleep
- 3 LED indicators for Range, Sound and Power/Battery

Power Sources

Transmitter (See Fig. A)

Connect the AC power cord to a wall outlet.

Receiver

To operate on battery (See Fig. B–a)

Insert one 6F22 battery (not supplied, alkaline recommended).
Make sure the terminal wires are positioned as shown in the illustrations before closing the battery compartment lid.

Battery life

Using a Sony 6F22 alkaline battery:
Approx. 28 hours.

When to replace the battery

If the **POWER/BATT** indicator becomes faint or does not light up at all when you turn on the unit, replace the battery with a new one.

To operate on house current (See Fig. B–b)

Connect the supplied AC power adaptor to the DC IN 9V jack of the receiver, and to a wall outlet. The **POWER/BATT** indicator will light up even when the unit is operating on house current.

Note

Use only the supplied AC power adaptor. Do not use any other AC power adaptor.

Monitoring Baby's Sounds (See Fig. C)

Setting up the transmitter

Place the transmitter within 2 to 3 meters (6 to 10 feet) from a crib or play area but out of the baby's reach. The transmitter must be placed upright when in use.

Note

Position the transmitter with its front (where the built-in microphone is located) facing the baby.

Monitoring through the receiver

The farthest distance you can place the receiver from the transmitter varies according to obstructions and other conditions. First, test the operating range with the assistance of another adult, or by placing a radio, etc., near the transmitter. If you move outside the effective operating range of the units, the **RANGE ALM.** indicator lights up and the buzzer sounds. In such a case, move closer toward the transmitter until the indicator and the buzzer go off.

To adjust the volume

The volume of the sounds you receive varies depending on the distance, obstructions, etc. Set **VOLUME** to between 4 and 6 initially. If the volume is too low, turn it towards 10. If the sound is too loud or there is an accompanying shrill noise, turn it towards 0.

The **VOICE ACT.** function, when activated, will cut out the transmission of faint sounds.

The **MONITOR** indicator will blink while receiving sound from the transmitter.

If signal interference occurs

Switch the **CH** selector to another frequency channel on both the transmitter and the receiver. Make sure that both the selectors are on the same setting.

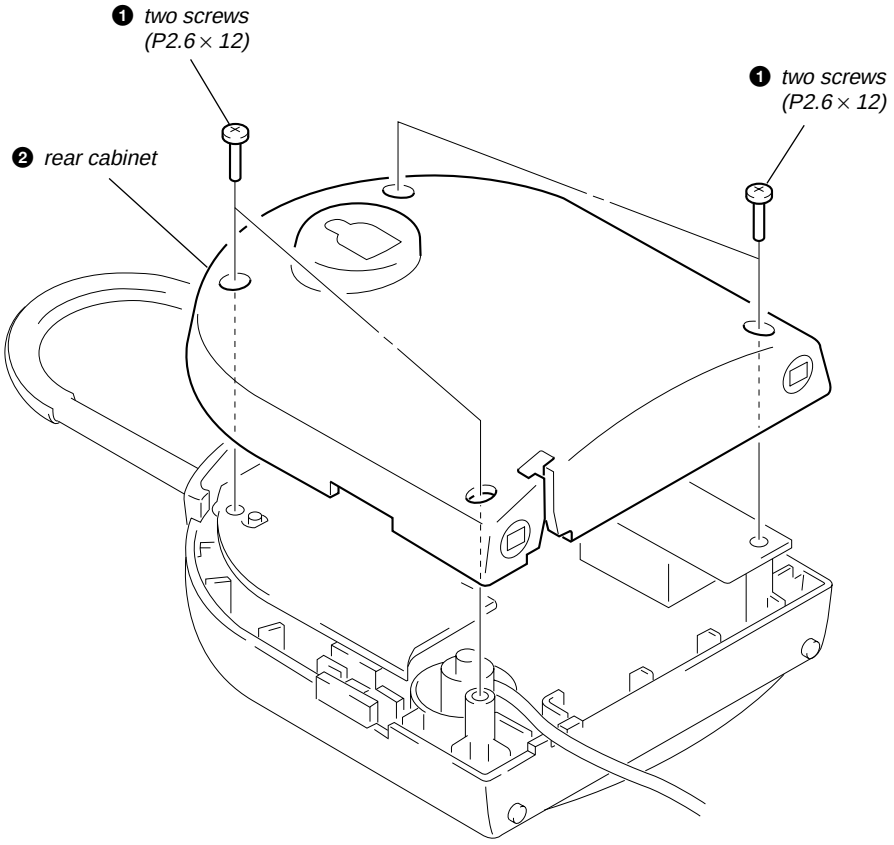
Notes

- The **MONITOR** indicator blinks only when the receiver receives a loud sound signal from the transmitter. If the sound is not loud enough, or when it is too far from the transmitter, the indicator does not blink. If the sound is too brief, the indicator may blink only once.
- Avoid placing the units near heat sources or where they are subject to direct sunlight, excessive dust, moisture, or mechanical shock.
- Be careful not to drop the receiver in water, or drop any liquid over it.
- Do not use the antenna as a carrying handle.

SECTION 2
DISASSEMBLY

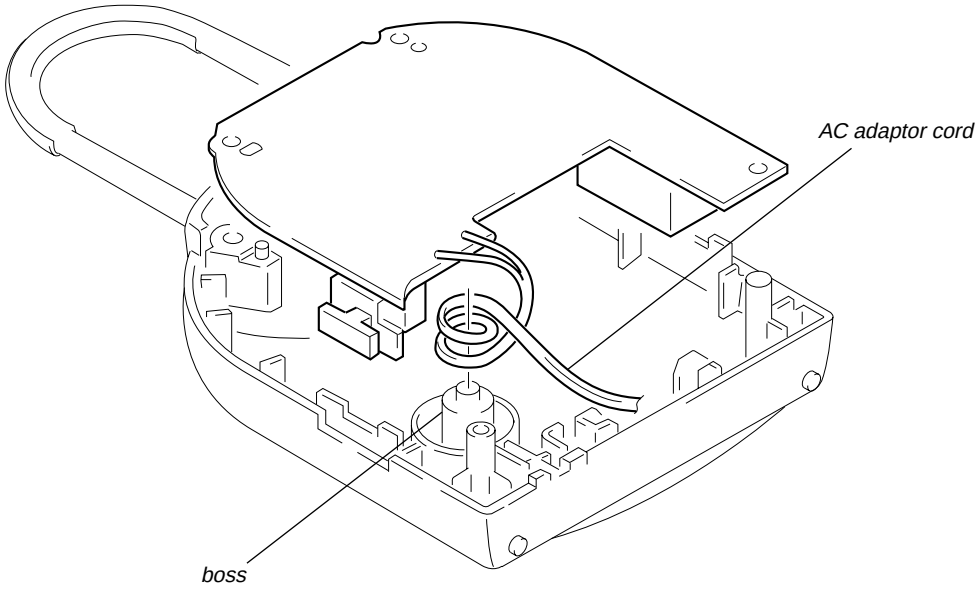
Note: Follow the disassembly procedure in the numerical order given.

• TRANSMITTER SECTION
REAR CABINET

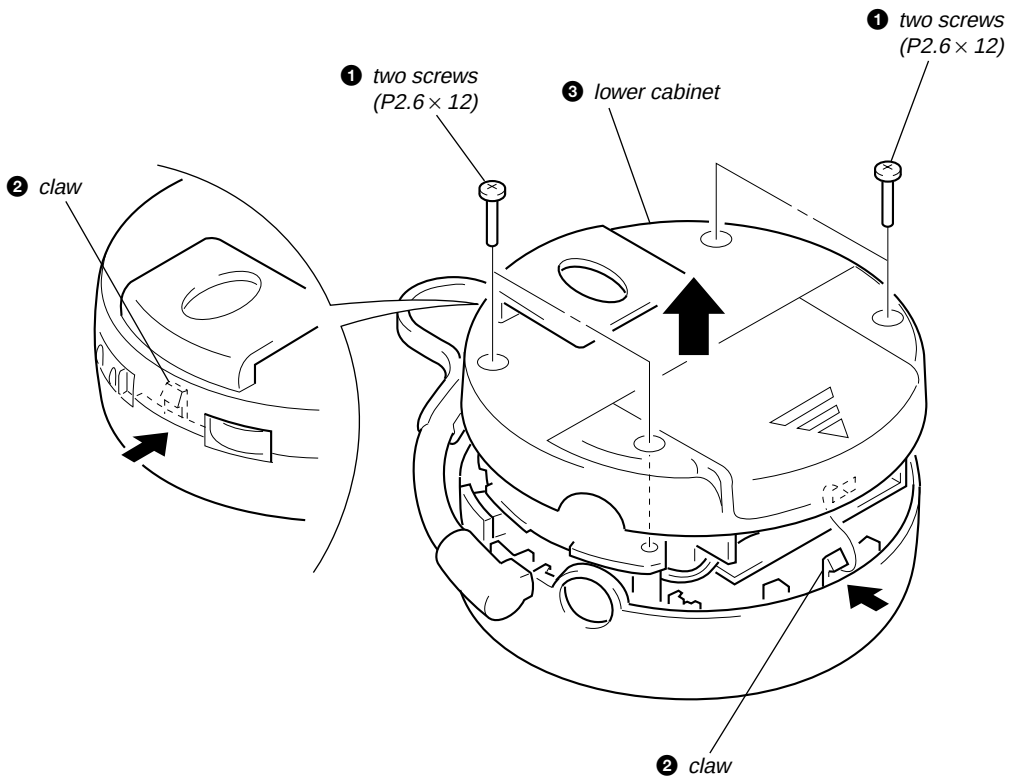


AC ADAPTER CORD SETTING

Wind the AC adaptor cord to boss 2 time.



• **RECEIVER SECTION**
LOWER CABINET



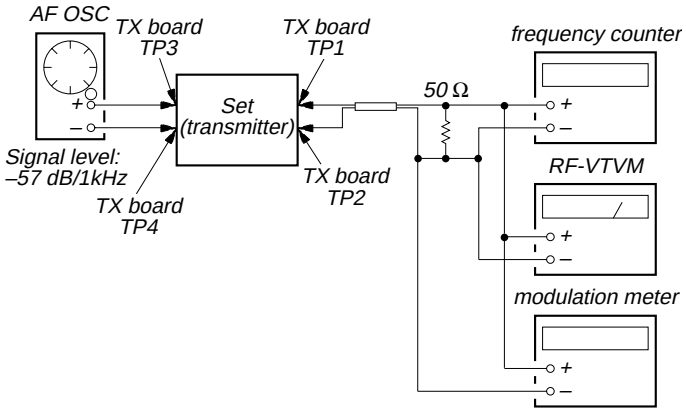
SECTION 3
ELECTRICAL ADJUSTMENTS

TRANSMITTER SECTION

Transmitter Output Adjustment

Setting:

CH switch (S101): B



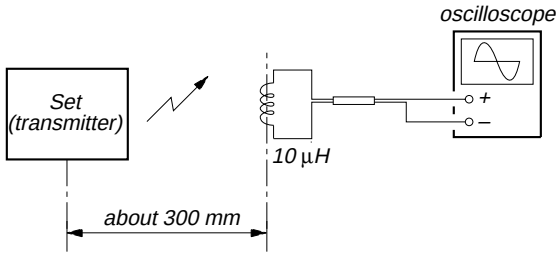
Procedure:

1. Take out solder for BP1 on the TX board, and take out solder for BP2 on the MIC board.
2. Connect the frequency counter, RF-VTVM and modulation meter with TP1 and TP2.
3. Adjust L105 for 49.860 MHz reading on the frequency counter.
4. Adjust T101and T102 for maximum reading on the RF-VTVM.
5. Adjust RV101 for 0.075 to 0.085 Vrms reading on the RF-VTVM.
6. Connect the AF OSC with TP3 and TP4, and input the signal.
7. Adjust RV102 for 2.5 kHz deviation reading on the modulation meter.
8. After adjustment take solder on BP1 and BP2

Transmitter Loading Coil Adjustment

Setting:

CH switch (S101): B

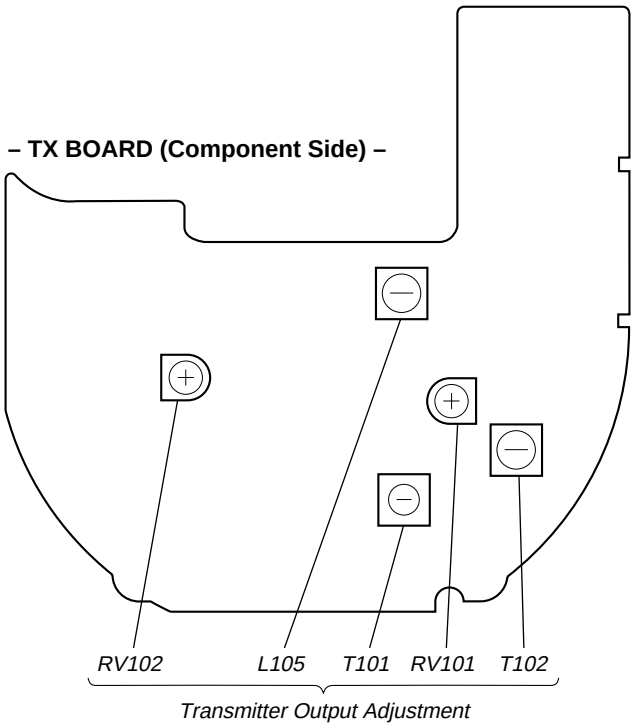


Procedure:

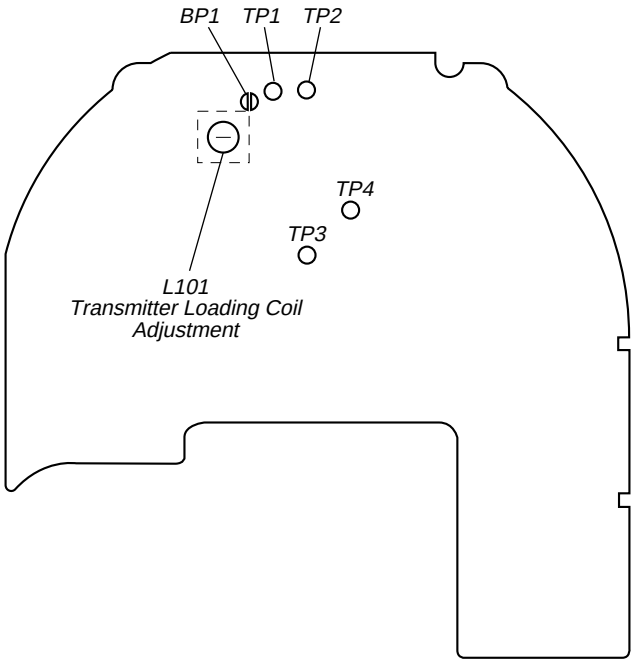
Adjust L101 for maximum waveform on the oscilloscope.

Adjustment Location:

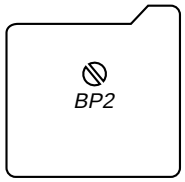
– TX BOARD (Component Side) –



– TX BOARD (Conductor Side) –



– MIC BOARD –
(Conductor Side)

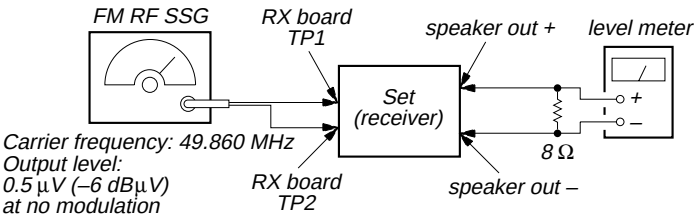


RECEIVER SECTION

Receiver Sensitivity Adjustment

Setting:

Power switch (S202) : ON
CH switch (S201) : B
VOLUME control (RV202): mechanical center



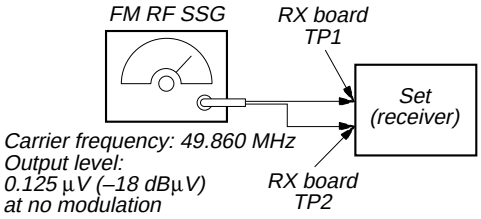
Procedure:

Adjust T201 and T202 for a minimum reading on the level meter.

Squelch Adjustment

Setting:

Power switch (S202) : VOICE ACT.
CH switch (S201) : B
VOLUME control (RV202): mechanical center



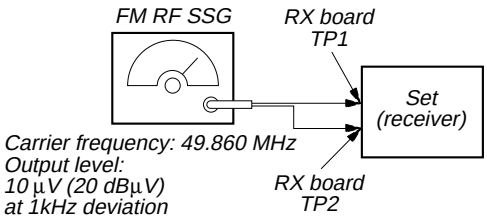
Procedure:

Adjust RV201 for the RANGE ALM. indicator (D205) is just lights up and the buzzer sounds point.

Monitor Level Adjustment

Setting:

Power switch (S202) : VOICE ACT.
CH switch (S201) : B
VOLUME control (RV202): mechanical center



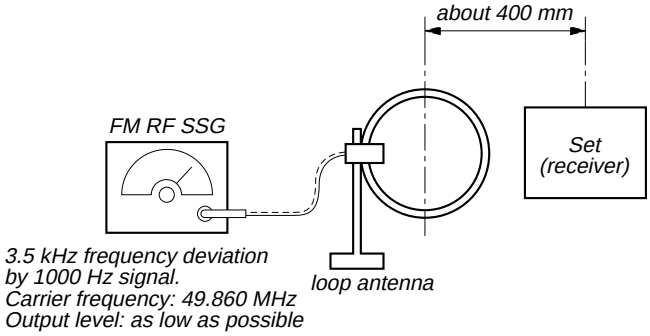
Procedure:

1. Adjust RV203 for the MONITOR indicator (D204) is just lights up point.
2. Set the frequency of the FM RF SSG to 49.830 MHz.
3. Set the CH switch (S201) to A, and verify that the signal can be received.
4. Set the frequency of the FM RF SSG to 49.890 MHz.
5. Set the CH switch to A, and verify that the signal can be received.

Receiver Loading Coil Adjustment

Setting:

Power switch (S202) : ON
CH switch (S201) : B
VOLUME control (RV202): mechanical center

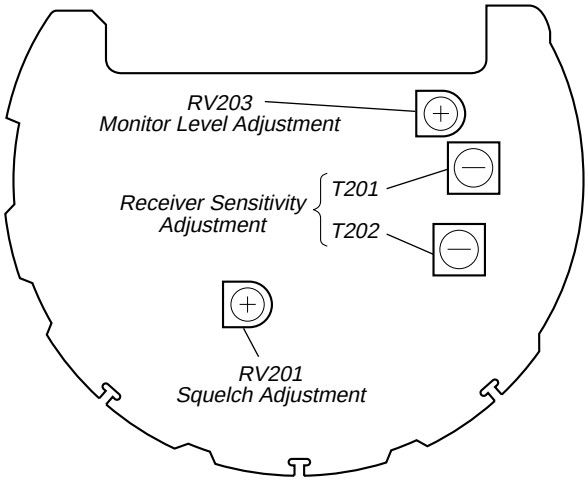


Procedure:

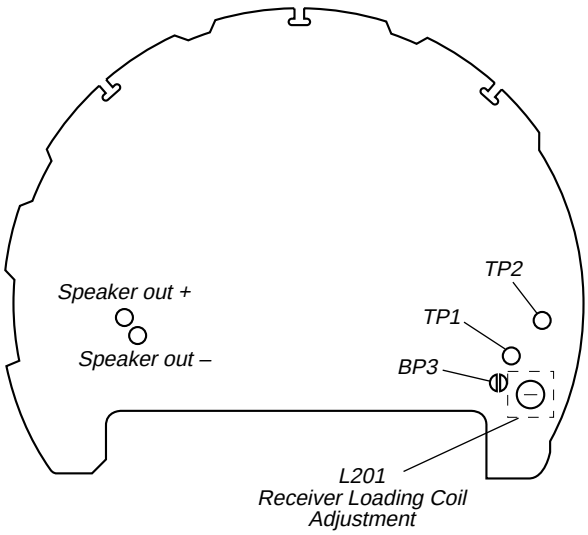
Adjust L201 so that the sound from the speaker (SP201) becomes best.

Adjustment Location:

– RX BOARD (Component Side) –

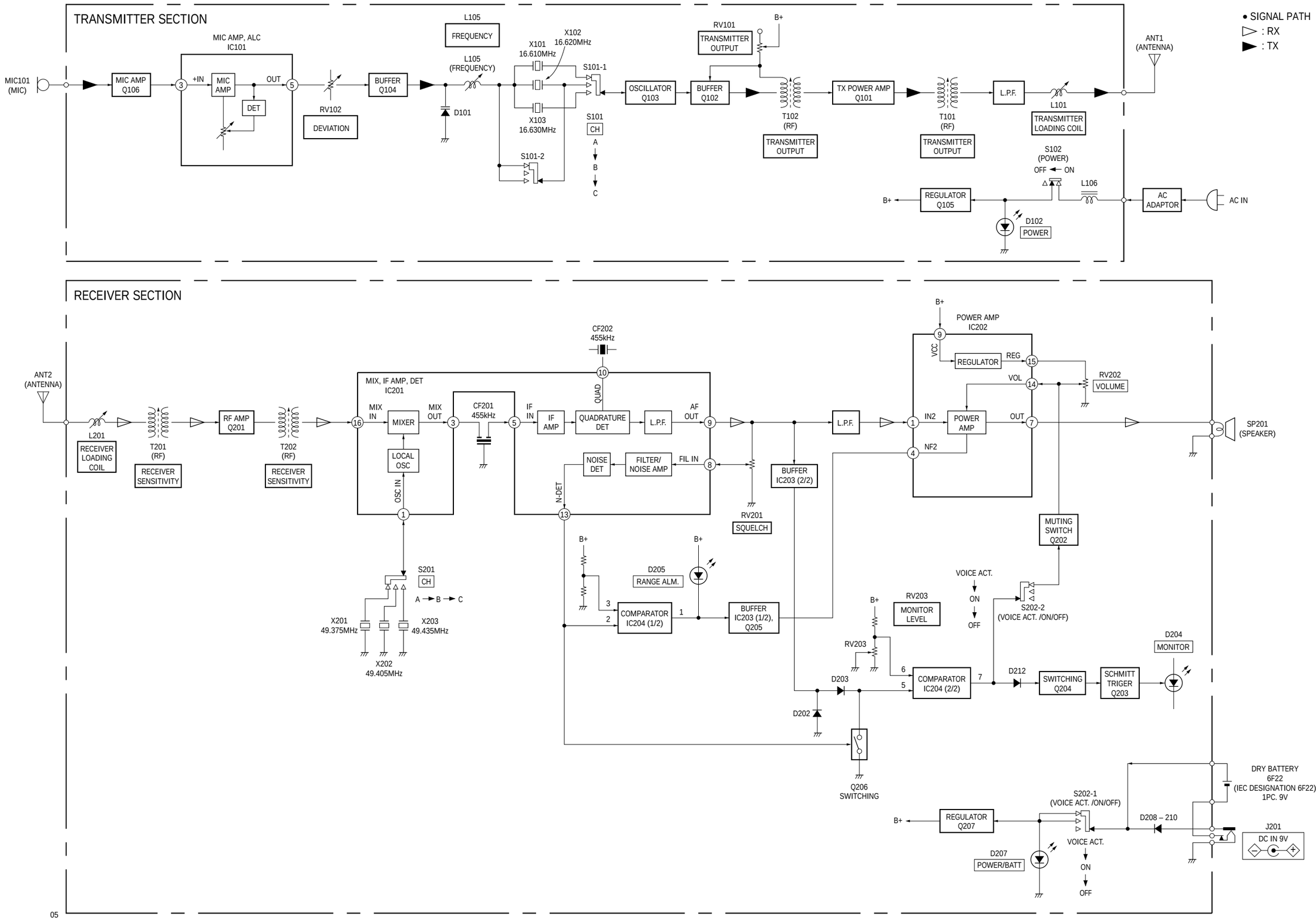


– RX BOARD (Conductor Side) –

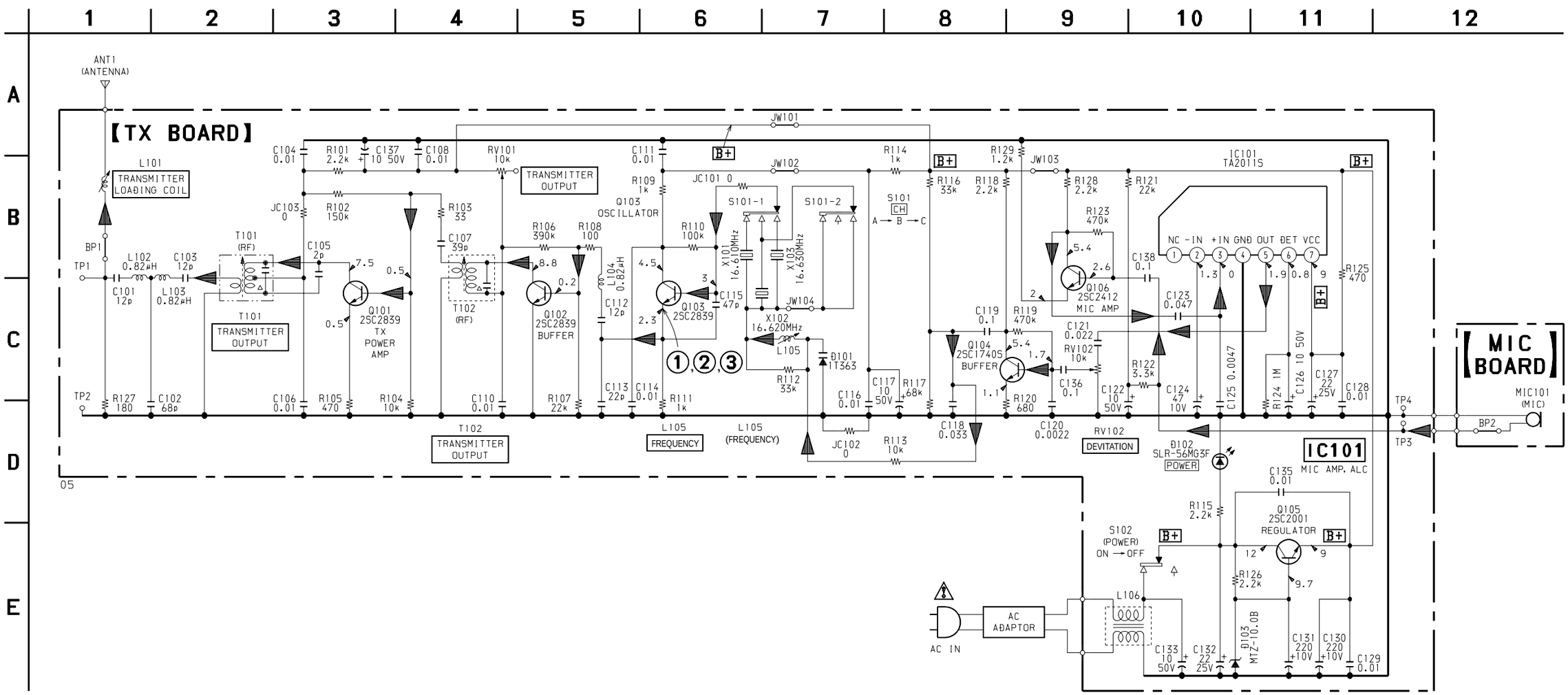


SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM



4-2. SCHEMATIC DIAGRAM – TX/MIC Boards –



Note on Schematic Diagram:

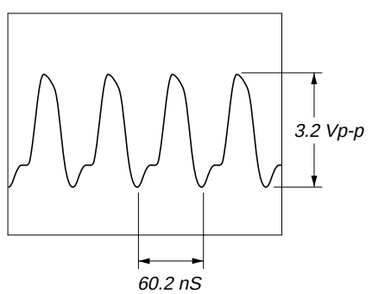
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

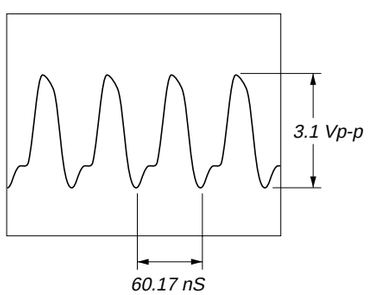
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : TX
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ► : TX

- **Waveforms**

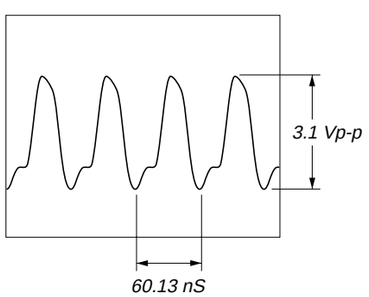
❶ Q103 (EMITTER) (CH A) (TX mode)
1 V/DIV, 20 nS/DIV



❷ Q103 (EMITTER) (CH C) (TX mode)
1 V/DIV, 20 nS/DIV

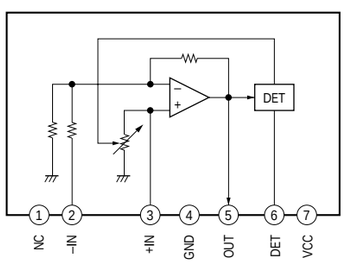


❸ Q103 (EMITTER) (CH C) (TX mode)
1 V/DIV, 20 nS/DIV

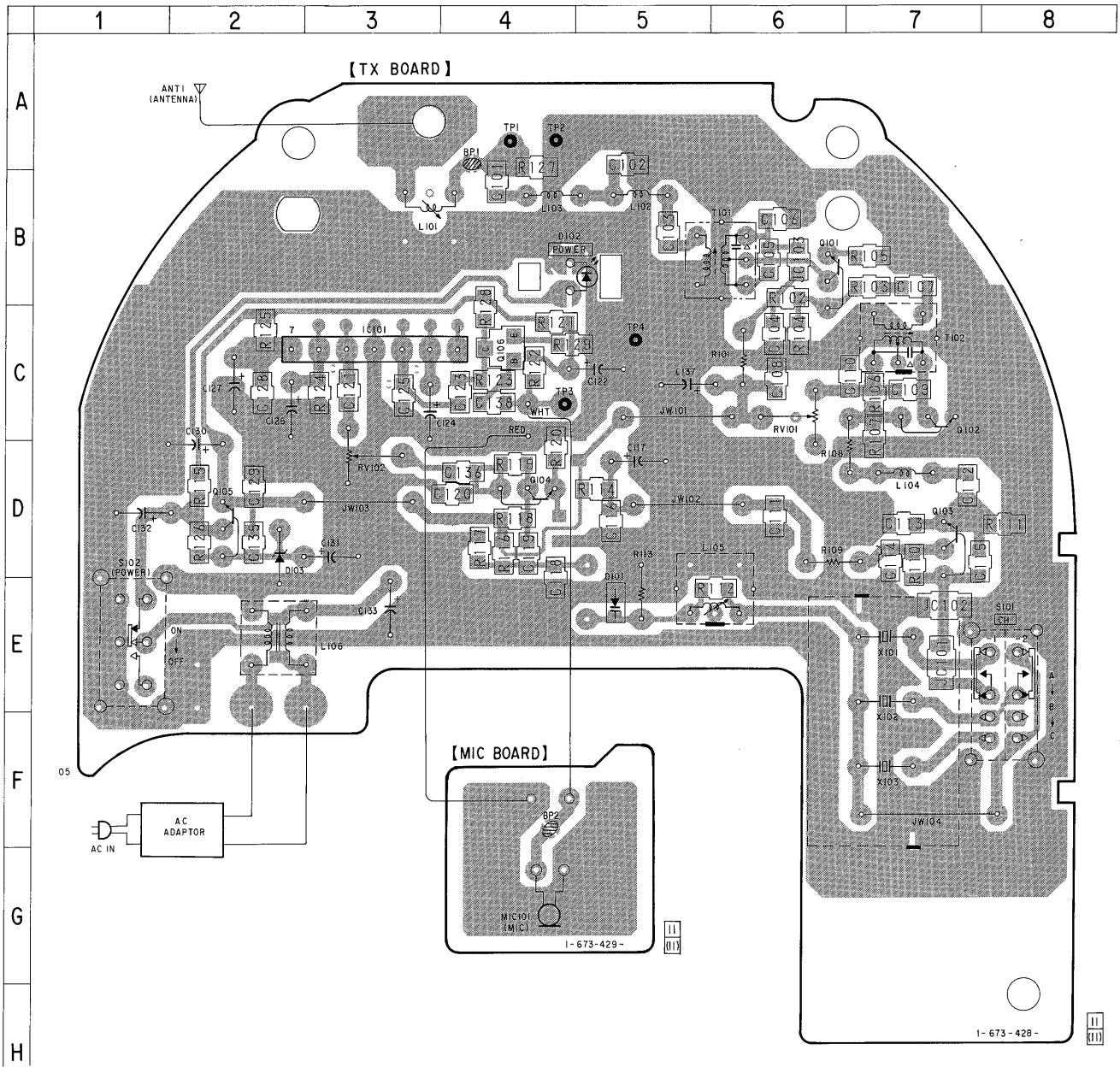


- **IC Block Diagram**

IC101 TA2011S



4-3. PRINTED WIRING BOARD – TX/MIC Boards –



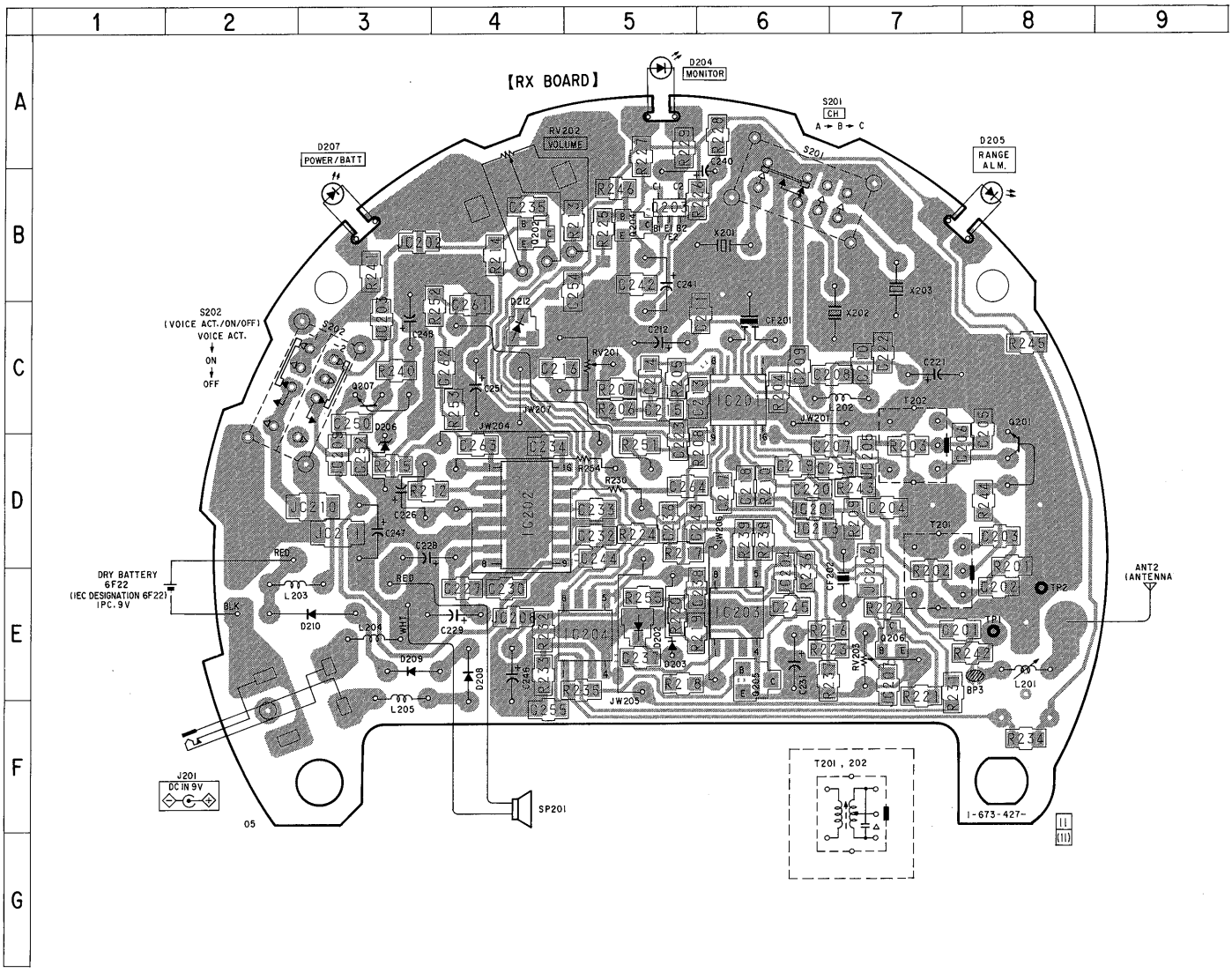
- **Semiconductor Location**

Ref. No.	Location
D101	E-5
D102	B-5
D103	D-2
IC101	C-3
Q101	B-6
Q102	C-7
Q103	D-7
Q104	D-4
Q105	D-2
Q106	C-4

Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ⬚← : indicates side identified with part number.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.

4-4. PRINTED WIRING BOARD – RX Board –



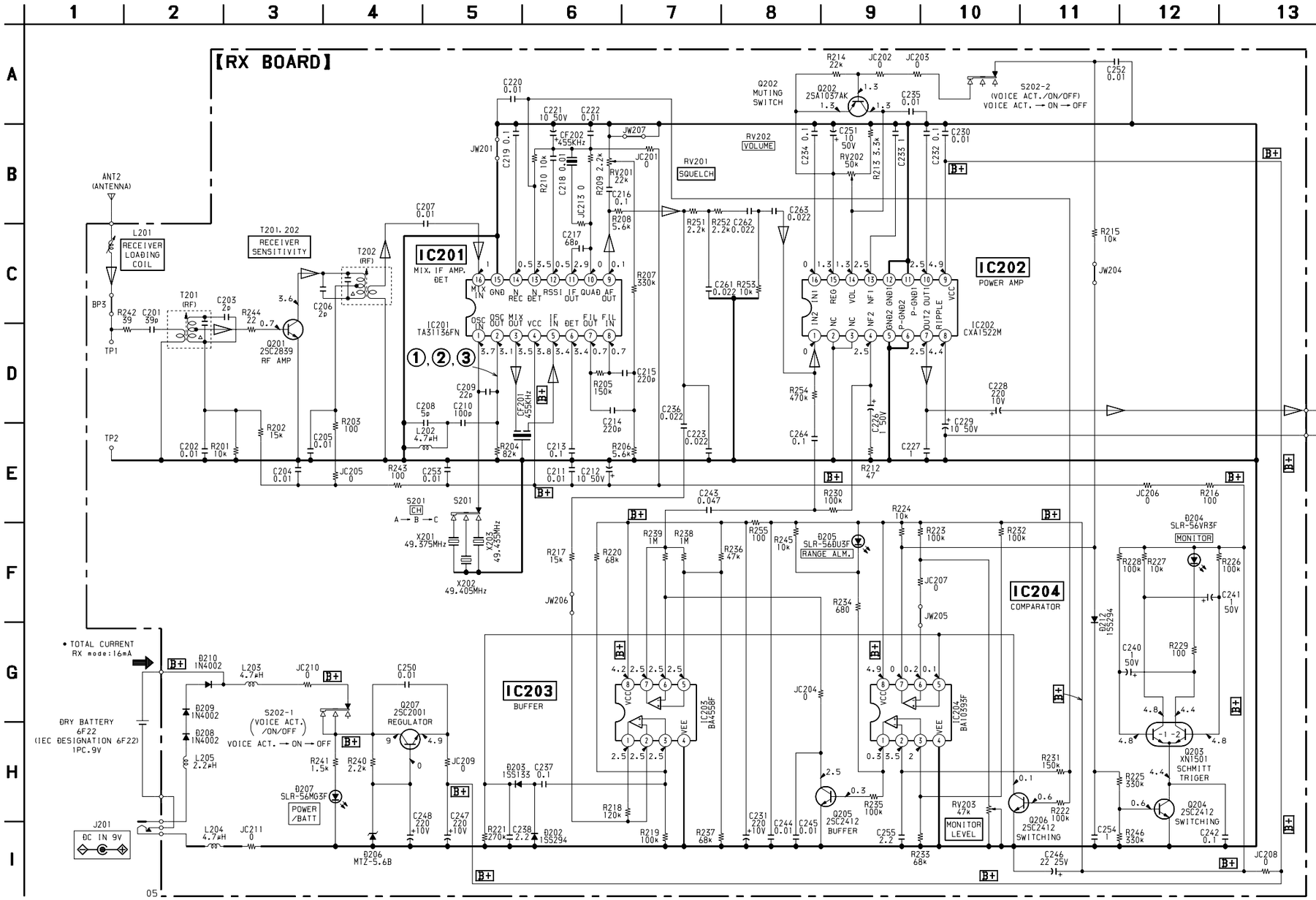
• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D202	E-5	IC201	C-6
D203	E-5	IC202	D-4
D204	A-5	IC203	E-6
D205	B-8	IC204	E-5
D206	D-3		
D207	B-3	Q201	D-8
D208	E-4	Q202	B-4
D209	E-3	Q203	B-5
D210	E-3	Q204	B-5
D212	C-4	Q205	E-6
		Q206	E-7
		Q207	C-3

Note on Printed Wiring Board:

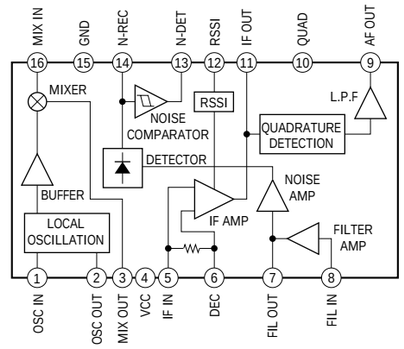
- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ⬚← : indicates side identified with part number.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

4-5. SCHEMATIC DIAGRAM – RX Board –

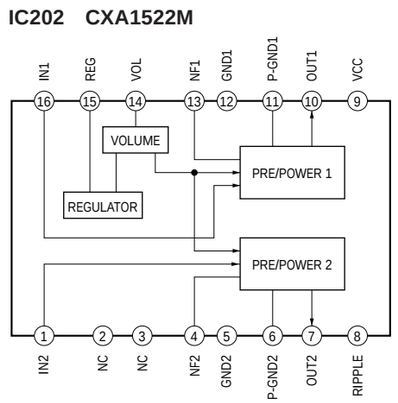


- **IC Block Diagrams**

IC201 TA31136FN

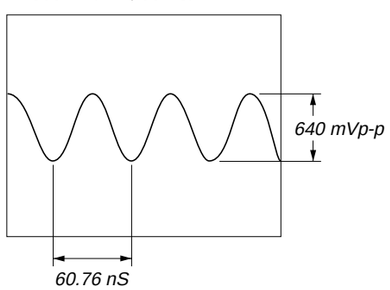


IC202 CXA1522M

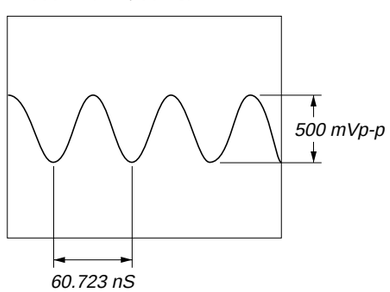


- **Waveforms**

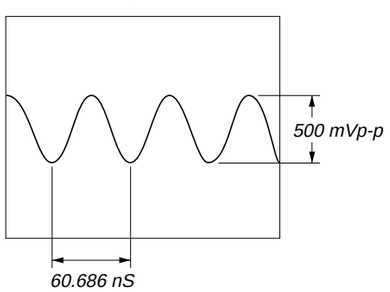
❶ IC201 ② (OSC OUT) (CH A) (RX mode)
500 mV/DIV, 50 nS/DIV



❷ IC201 ② (OSC OUT) (CH B) (RX mode)
500 mV/DIV, 50 nS/DIV



❸ IC201 ② (OSC OUT) (CH C) (RX mode)
500 mV/DIV, 50 nS/DIV



Note on Schematic Diagram:

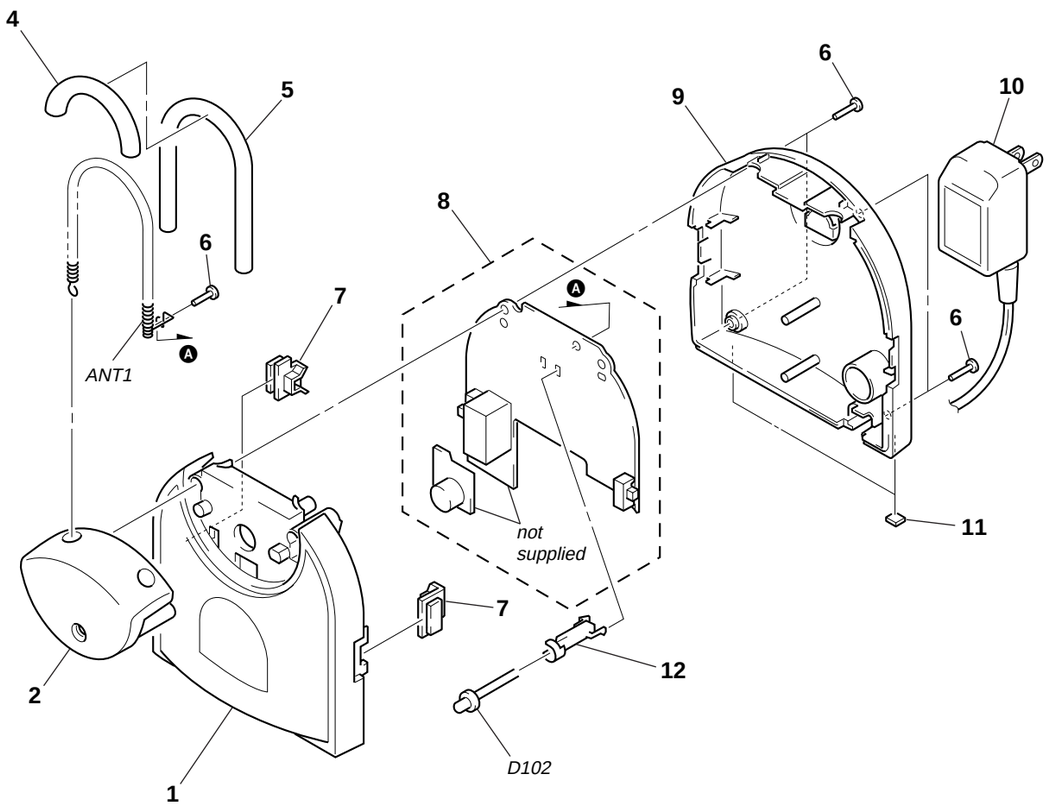
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- ▬ : adjustment for repair.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : RX
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : RX

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

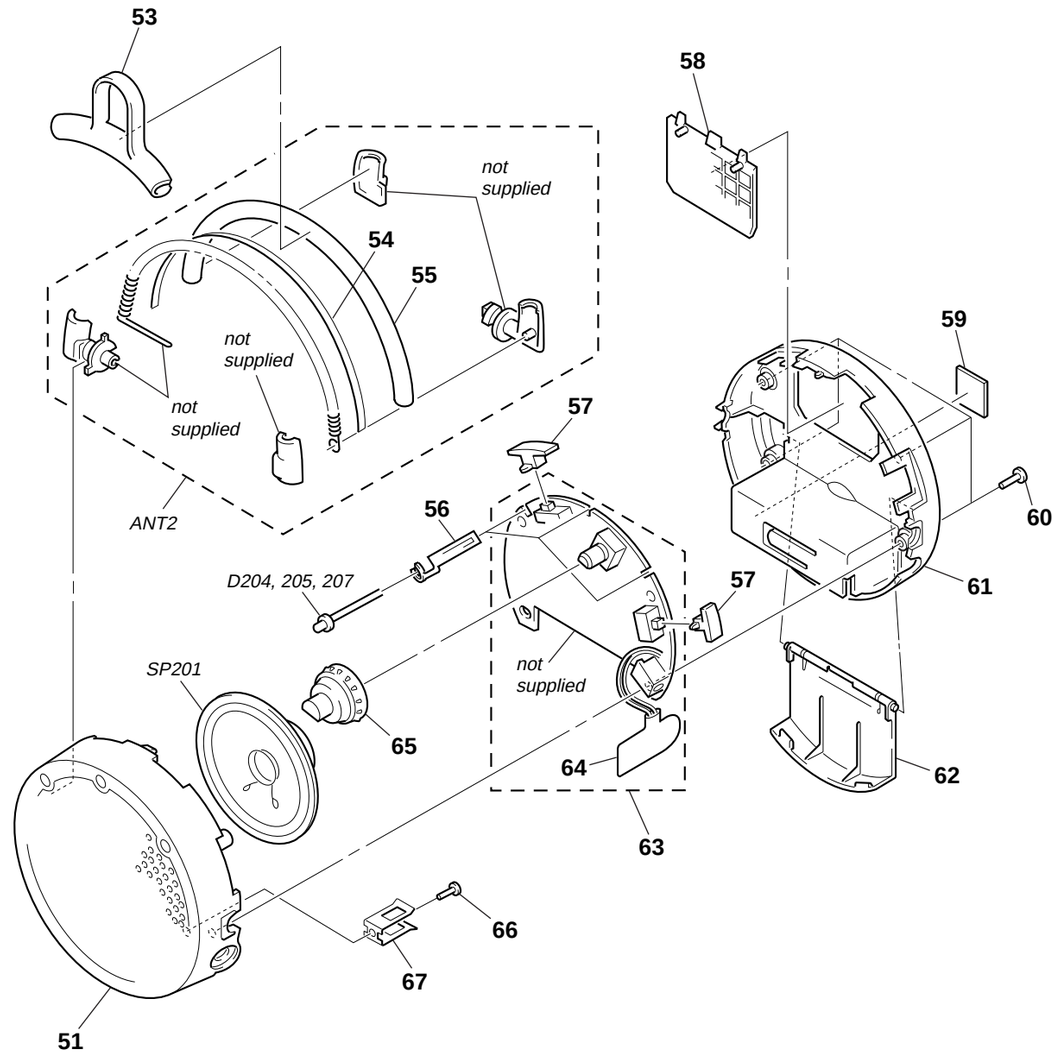
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) TRANSMITTER SECTION



Ref. No.	Part No.	Description	Remark
1	3-033-237-01	CABINET (FRONT) (TX)	
2	3-033-239-01	PANEL (TX)	
4	3-033-240-01	COVER (ANTENNA) (TX)	
5	3-033-243-01	COVER, ANTENNA	
6	7-685-136-14	SCREW +P 2.6X12 TYPE2 NON-SLIT	
7	3-033-241-01	KNOB (TX)	
* 8	A-3663-228-A	TX BOARD, COMPLETE	
9	3-033-238-01	CABINET (REAR) (TX)	
⚠ 10	1-473-646-31	ADAPTOR, AC	
11	3-036-255-01	FOOT, RUBBER	
12	3-033-242-01	HOLDER (A) (LED)	
ANT1	3-033-244-01	ANTENNA (TX), COIL	
D102	8-719-074-45	DIODE SLR-56MG3F (POWER)	

(2) RECEIVER SECTION



Ref. No.	Part No.	Description	Remark
51	3-033-245-01	CABINET (UPPER) (RX)	
53	3-033-252-01	COVER (ANTENNA RX)	
54	3-036-254-01	REINFORCEMENT (RX)	
55	3-033-243-01	COVER, ANTENNA	
56	3-033-251-01	HOLDER (B) (LED)	
57	3-033-249-01	KNOB (RX)	
* 58	3-033-248-01	LID	
59	3-036-257-01	CUSHION (BATTERY)	
60	7-685-136-14	SCREW +P 2.6X12 TYPE2 NON-SLIT	
61	3-033-246-01	CABINET (LOWER) (RX)	
62	3-033-247-01	LID, BATTERY CASE	
* 63	A-3663-231-A	RX BOARD, COMPLETE	
64	1-535-804-21	SNAP, BATTERY	
65	3-033-250-01	KNOB (VOL)	
66	3-318-203-71	SCREW (B1.7X5), TAPPING	
* 67	3-033-258-01	PLATE, CLICK	
ANT2	X-3376-901-1	ANTENNA ASSY	
D204	8-719-055-63	LED SLR-56VR3F (RED) (MONITOR)	
D205	8-719-062-00	LED SLR-56DU3F (ORG) (RANGE ALM.)	
D207	8-719-074-45	LED SLR-56MG3F (GRN) (POWER/BATT)	
SP201	1-503-616-11	SPEAKER	

SECTION 6
ELECTRICAL PARTS LIST

MIC RX

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
		MIC BOARD			
		**********			
		(Included in TX BOARD, COMPLETE)			
		< MICROPHONE >			
MIC101	1-542-118-11	MICROPHONE, ELECTRET CONDENSER			
**********					
*	A-3663-231-A	RX BOARD, COMPLETE			
		**********			
	1-535-804-21	SNAP, BATTERY			
	3-033-251-01	HOLDER (B) (LED)			
		< CAPACITOR >			
C201	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C202	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C203	1-163-085-00	CERAMIC CHIP	2PF		50V
C204	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C205	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C206	1-163-085-00	CERAMIC CHIP	2PF		50V
C207	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C208	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C209	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C210	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C211	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C212	1-126-964-11	ELECT	10uF	20%	50V
C213	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C214	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C215	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C216	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C217	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C218	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C219	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C220	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C221	1-126-964-11	ELECT	10uF	20%	50V
C222	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C223	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C226	1-126-960-11	ELECT	1uF	20%	50V
C227	1-164-346-11	CERAMIC CHIP	1uF		16V
C228	1-126-934-11	ELECT	220uF	20%	10V
C229	1-126-964-11	ELECT	10uF	20%	50V
C230	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C231	1-126-934-11	ELECT	220uF	20%	10V
C232	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C233	1-164-346-11	CERAMIC CHIP	1uF		16V
C234	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C235	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C236	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C237	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C238	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C240	1-126-960-11	ELECT	1uF	20%	50V
C241	1-126-960-11	ELECT	1uF	20%	50V
C242	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C243	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C244	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C245	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C246	1-128-551-11	ELECT	22uF	20%	25V
C246	1-126-964-11	ELECT	10uF	20%	50V
C247	1-126-934-11	ELECT	220uF	20%	10V
C248	1-126-934-11	ELECT	220uF	20%	10V
C250	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C251	1-126-964-11	ELECT	10uF	20%	50V
C252	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C253	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C254	1-164-346-11	CERAMIC CHIP	1uF		16V
C255	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C261	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C262	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C263	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C264	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CERAMIC FILTER >			
CF201	1-781-428-11	FILTER, CERAMIC (455kHz)			
CF202	1-767-848-11	FILTER, CERAMIC (DISCRIMINATOR) (455kHz)			
		< DIODE >			
D202	8-719-820-61	DIODE 1SS294			
D203	8-719-991-33	DIODE 1SS133T-77			
D206	8-719-109-89	DIODE RD5.6ESB2			
D208	8-719-052-88	DIODE 1N4002			
D209	8-719-052-88	DIODE 1N4002			
D210	8-719-052-88	DIODE 1N4002			
D212	8-719-820-61	DIODE 1SS294			
		< IC >			
IC201	8-759-249-18	IC TA31136FN			

RX **TX**

Ref. No.	Part No.	Description			Remark
IC202	8-752-064-80	IC CXA1522M			
IC203	8-759-909-71	IC BA4558F			
IC204	8-759-510-73	IC BA10393F-E2			
		< JACK >			
J201	1-778-380-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 9V)			
		< SHORT >			
JC201	1-216-295-00	SHORT 0			
JC202	1-216-295-00	SHORT 0			
JC203	1-216-295-00	SHORT 0			
JC204	1-216-295-00	SHORT 0			
JC205	1-216-295-00	SHORT 0			
JC206	1-216-296-00	SHORT 0			
JC207	1-216-295-00	SHORT 0			
JC208	1-216-295-00	SHORT 0			
JC209	1-216-295-00	SHORT 0			
JC210	1-216-296-00	SHORT 0			
JC211	1-216-296-00	SHORT 0			
JC213	1-216-295-00	SHORT 0			
		< COIL >			
L201	1-419-103-11	COIL			
L202	1-410-324-11	INDUCTOR 4.7uH			
L203	1-410-324-11	INDUCTOR 4.7uH			
L204	1-410-324-11	INDUCTOR 4.7uH			
L205	1-414-146-31	INDUCTOR 2.2uH			
		< TRANSISTOR >			
Q201	8-729-800-15	TRANSISTOR 2SC2839TP-D			
Q202	8-729-026-48	TRANSISTOR 2SA1037AK-T146-Q			
Q203	8-729-402-13	TRANSISTOR XN1501			
Q204	8-729-620-06	TRANSISTOR 2SC3052-EF			
Q205	8-729-620-06	TRANSISTOR 2SC3052-EF			
Q206	8-729-620-06	TRANSISTOR 2SC3052-EF			
Q207	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2			
		< RESISTOR >			
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R202	1-216-077-00	METAL CHIP	15K	5%	1/10W
R203	1-216-025-00	RES, CHIP	100	5%	1/10W
R204	1-216-095-00	METAL CHIP	82K	5%	1/10W
R205	1-216-101-00	METAL CHIP	150K	5%	1/10W
R206	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R207	1-216-109-00	METAL CHIP	330K	5%	1/10W
R208	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R209	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R212	1-216-017-00	RES, CHIP	47	5%	1/10W
R213	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R214	1-216-081-00	METAL CHIP	22K	5%	1/10W
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-025-00	RES, CHIP	100	5%	1/10W
R217	1-216-077-00	METAL CHIP	15K	5%	1/10W
R218	1-216-099-00	METAL CHIP	120K	5%	1/10W
R219	1-216-097-00	RES, CHIP	100K	5%	1/10W
R220	1-216-093-00	RES, CHIP	68K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R221	1-216-107-00	METAL CHIP	270K	5%	1/10W
R222	1-216-097-00	RES, CHIP	100K	5%	1/10W
R223	1-216-097-00	RES, CHIP	100K	5%	1/10W
R224	1-216-073-00	METAL CHIP	10K	5%	1/10W
R225	1-216-109-00	METAL CHIP	330K	5%	1/10W
R226	1-216-097-00	RES, CHIP	100K	5%	1/10W
R227	1-216-073-00	METAL CHIP	10K	5%	1/10W
R228	1-216-097-00	RES, CHIP	100K	5%	1/10W
R229	1-216-025-00	RES, CHIP	100	5%	1/10W
R230	1-249-441-11	CARBON	100K	5%	1/4W
R231	1-216-101-00	METAL CHIP	150K	5%	1/10W
R232	1-216-097-00	RES, CHIP	100K	5%	1/10W
R233	1-216-093-00	RES, CHIP	68K	5%	1/10W
R234	1-216-045-00	METAL CHIP	680	5%	1/10W
R235	1-216-097-00	RES, CHIP	100K	5%	1/10W
R236	1-216-089-00	RES, CHIP	47K	5%	1/10W
R237	1-216-093-00	RES, CHIP	68K	5%	1/10W
R238	1-216-121-00	RES, CHIP	1M	5%	1/10W
R239	1-216-121-00	RES, CHIP	1M	5%	1/10W
R240	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R241	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R242	1-216-015-00	METAL CHIP	39	5%	1/10W
R243	1-216-025-00	RES, CHIP	100	5%	1/10W
R244	1-216-009-00	RES, CHIP	22	5%	1/10W
R245	1-216-073-00	METAL CHIP	10K	5%	1/10W
R246	1-216-109-00	METAL CHIP	330K	5%	1/10W
R251	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R252	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R253	1-216-073-00	METAL CHIP	10K	5%	1/10W
R254	1-247-895-00	CARBON	470K	5%	1/4W
R255	1-216-025-00	RES, CHIP	100	5%	1/10W
		< VARIABLE RESISTOR >			
RV201	1-228-995-00	RES, ADJ, METAL 22K			
RV202	1-225-441-11	RES, VAR, CARBON 50K			
RV203	1-228-996-00	RES, ADJ, METAL 47K			
		< SWITCH >			
S201	1-762-368-11	SWITCH, SLIDE (CH)			
S202	1-762-368-11	SWITCH, SLIDE (VOICE ACT. /ON/OFF)			
		< TRANSFORMER >			
T201	1-411-807-11	COIL (WITH CORE) (RF)			
T202	1-411-807-11	COIL (WITH CORE) (RF)			
		< VIBRATOR >			
X201	1-767-041-11	VIBRATOR, CRYSTAL (49.375MHz)			
X202	1-767-042-11	VIBRATOR, CRYSTAL (49.405MHz)			
X203	1-767-043-11	VIBRATOR, CRYSTAL (49.435MHz)			
**********					
*	A-3663-228-A	TX BOARD, COMPLETE (Including MIC BOARD)			
		**********			
	3-033-242-01	HOLDER (A) (LED)			

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C101	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C102	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C103	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C104	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C105	1-163-085-00	CERAMIC CHIP	2PF		50V
C106	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C107	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C108	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C110	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C111	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C112	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C113	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C114	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C115	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C116	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C117	1-126-964-11	ELECT	10uF	20%	50V
C118	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C121	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C122	1-126-964-11	ELECT	10uF	20%	50V
C123	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C124	1-104-664-11	ELECT	47uF	20%	10V
C125	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C126	1-126-964-11	ELECT	10uF	20%	50V
C127	1-128-551-11	ELECT	22uF	20%	25V
C128	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C129	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C130	1-126-934-11	ELECT	220uF	20%	10V
C131	1-126-934-11	ELECT	220uF	20%	10V
C132	1-128-551-11	ELECT	22uF	20%	25V
C133	1-128-551-11	ELECT	22uF	20%	25V
C135	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C136	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C137	1-126-964-11	ELECT	10uF	20%	50V
C138	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< DIODE >			
D101	8-719-002-81	DIODE 1T363			
D103	8-719-110-17	DIODE RD10ESB2			
		< IC >			
IC101	8-759-246-69	IC TA2011S			
		< SHORT >			
JC101	1-216-296-00	SHORT	0		
JC102	1-216-296-00	SHORT	0		
JC103	1-216-295-00	SHORT	0		
		< COIL >			
L101	1-416-990-11	COIL			
L102	1-414-141-11	INDUCTOR	0.82uH		
L103	1-414-141-11	INDUCTOR	0.82uH		
L104	1-414-141-11	INDUCTOR	0.82uH		
L105	1-411-808-11	COIL (RF)			

Ref. No.	Part No.	Description			Remark
L106	1-419-113-11	COIL, CHOKE			
		< TRANSISTOR >			
Q101	8-729-800-15	TRANSISTOR 2SC2839TP-D			
Q102	8-729-800-15	TRANSISTOR 2SC2839TP-D			
Q103	8-729-800-15	TRANSISTOR 2SC2839TP-D			
Q104	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q105	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2			
Q106	8-729-620-06	TRANSISTOR 2SC3052-EF			
		< RESISTOR >			
R101	1-249-421-11	CARBON	2.2K	5%	1/4W
R102	1-216-101-00	METAL CHIP	150K	5%	1/10W
R103	1-216-013-00	METAL CHIP	33	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-041-00	METAL CHIP	470	5%	1/10W
R106	1-216-111-00	METAL CHIP	390K	5%	1/10W
R107	1-216-081-00	METAL CHIP	22K	5%	1/10W
R108	1-247-807-31	CARBON	100	5%	1/4W
R109	1-249-417-11	CARBON	1K	5%	1/4W
R110	1-216-097-00	RES, CHIP	100K	5%	1/10W
R111	1-216-049-11	RES, CHIP	1K	5%	1/10W
R112	1-216-085-00	METAL CHIP	33K	5%	1/10W
R113	1-249-429-11	CARBON	10K	5%	1/4W
R114	1-216-049-11	RES, CHIP	1K	5%	1/10W
R115	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R116	1-216-085-00	METAL CHIP	33K	5%	1/10W
R117	1-216-093-00	RES, CHIP	68K	5%	1/10W
R118	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R119	1-216-113-00	METAL CHIP	470K	5%	1/10W
R120	1-216-045-00	METAL CHIP	680	5%	1/10W
R121	1-216-081-00	METAL CHIP	22K	5%	1/10W
R122	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R123	1-216-113-00	METAL CHIP	470K	5%	1/10W
R124	1-216-121-00	RES, CHIP	1M	5%	1/10W
R125	1-216-041-00	METAL CHIP	470	5%	1/10W
R126	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R127	1-216-031-00	METAL CHIP	180	5%	1/10W
R128	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R129	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-228-994-00	RES, ADJ, METAL 10K			
RV102	1-228-994-00	RES, ADJ, METAL 10K			
		< SWITCH >			
S101	1-762-368-11	SWITCH, SLIDE (CH)			
S102	1-762-367-11	SWITCH, SLIDE (POWER)			
		< TRANSFORMER >			
T101	1-459-897-11	COIL (WITH CORE)			
T102	1-411-807-11	COIL (WITH CORE) (RF)			
		< VIBRATOR >			
X101	1-767-044-11	VIBRATOR, CRYSTAL (16.610MHz)			
X102	1-767-045-11	VIBRATOR, CRYSTAL (16.620MHz)			

TX

Ref. No.	Part No.	Description	Remark
X103	1-767-046-11	VIBRATOR, CRYSTAL (16.630MHz)	

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MISCELLANEOUS
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⚠10	1-473-646-31	ADAPTOR, AC	
D102	8-719-074-45	LED SLR-56MG3F (POWER)	
D204	8-719-055-63	LED SLR-56VR3F (RED) (MONITOR)	
D205	8-719-062-00	LED SLR-56DU3F (ORG) (RANGE ALM.)	
D207	8-719-074-45	LED SLR-56MG3F (GRN) (POWER/BATT)	
SP201	1-503-616-11	SPEAKER	

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ACCESSORIES & PACKING MATERIALS
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⚠	1-473-646-11	ADAPTOR, AC (AC-902)	
	3-865-983-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (E)	
	3-865-983-21	MANUAL, INSTRUCTION (ENGLISH) (US)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Personal A&V Products Company

99D057039-1
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Published by Quality Engineering Dept. (Shinagawa)